Volunteer Lake Assessment Program Individual Lake Reports

WINNEPOCKET, LAKE, WEBSTER, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,728	**Max. Depth (m):**	20.4	**Flushing Rate (yr^{1})**	0.6
Surface Area (Ac.):	227	**Mean Depth (m):**	5.8	**P Retention Coef:**	0.73
Shore Length (m):	5,000	**Volume (m^3):**	5,315,500	**Elevation (ft):**	452

TROPHIC CLASSIFICATION

Year	Trophic class
1982	OLIGOTROPHIC
1998	OLIGOTROPHIC

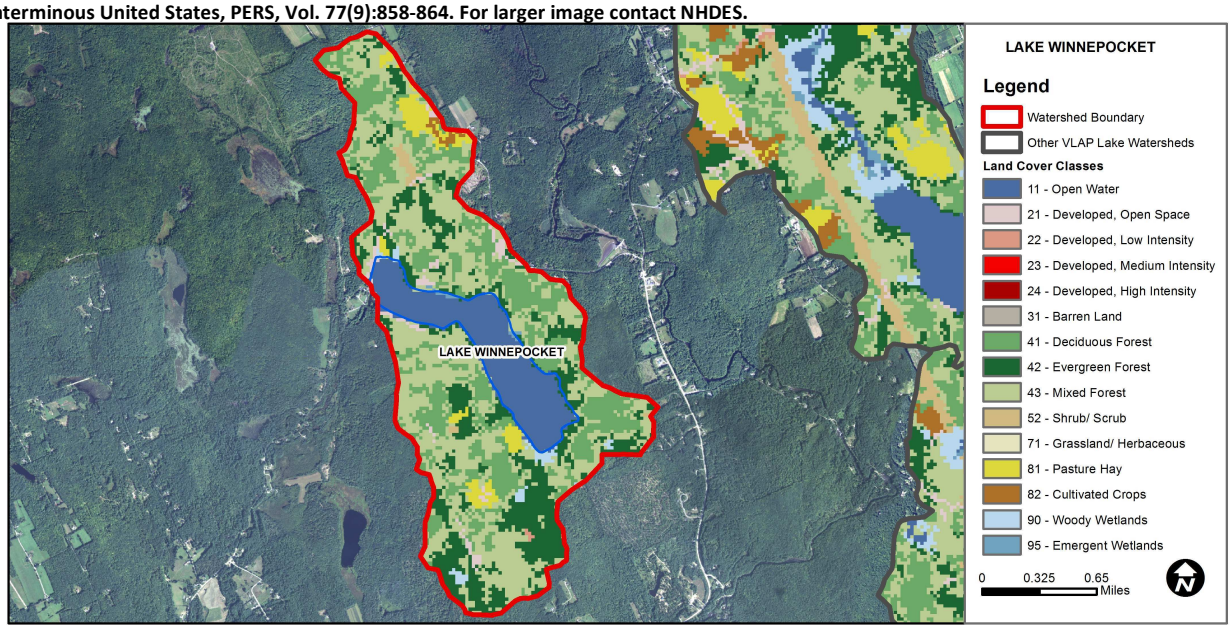
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

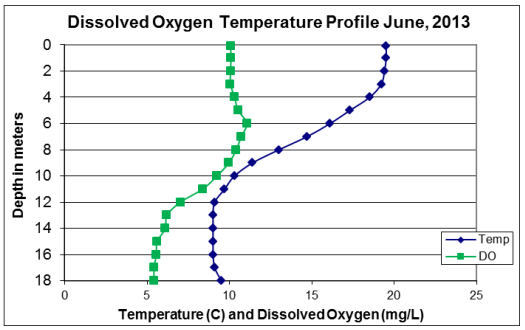


Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	13.1	Barren Land	0	Grassland/Herbaceous	0.01
Developed-Open Space	1.82	Deciduous Forest	22.29	Pasture Hay	3.36
Developed-Low Intensity	0.09	Evergreen Forest	19.05	Cultivated Crops	0.38
Developed-Medium Intensity	0	Mixed Forest	37.97	Woody Wetlands	0.97
Developed-High Intensity	0	Shrub-Scrub	0.65	Emergent Wetlands	0.22

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
WINNEPOCKET LAKE, WEBSTER, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels were low in June and August and average levels were less than the state median. Historical trend analysis indicates relatively stable chlorophyll levels with moderately variability between years.
- **CONDUCTIVITY/CHLORIDE:** Deep spot, tributary and nearshore conductivity levels were low and approximately equal to the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began. We hope to see this continue!
- **E. COLI:** E. coli levels were low and less than the state standard for surface waters at all stations except Boxlet Inlet in June when E. coli levels were elevated and greater than the state standard. Recent significant storm events and high tributary flow indicate stormwater runoff likely contributed to the elevated E. coli levels. Potential sources of E. coli likely wildlife or domestic animal waste.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were low in June and slightly elevated in August; average levels remained below the state median. Historical trend analysis indicates stable epilimnetic phosphorus with low variability between years. Metalimnetic and hypolimnetic phosphorus levels were low. Boxlet Inlet phosphorus levels were slightly elevated but were within an average range for this station; downstream Boxlet Inlet 2 phosphorus levels were much less than upstream. All other tributary and nearshore phosphorus levels were low.
- **TRANSPARENCY:** Transparency was lower in June potentially due to significant storm events prior to and while sampling. August transparency was good and 2013 average transparency remained better than the state median. Historical trend analysis indicates stable transparency with low variability between years.
- **TURBIDITY:** Epilimnetic turbidity increased in August potentially due to algal growth, and water levels were higher than normal and shoreline erosion may have affected epilimnetic turbidity. Boxlet Inlet turbidity was slightly elevated on both sampling events and tributary flows were moderate to high. Turbidity at all other stations was low.
- **PH:** Metalimnetic and hypolimnetic pH levels tend to be less than desirable range 6.5 – 8.0 units. Historical trend analysis indicates relatively stable epilimentic pH with moderate variability between years.
- **RECOMMENDED ACTIONS:** Boxlet Inlet E. coli levels fluctuate between high and low numbers, and are typically elevated after rain events. A potential beaver dam upstream may be the source of elevated E. coli following rain events. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff from lake and watershed properties, dirt/gravel roads and steep slopes. DES' "Homeowner's Guide to Stormwater Management" is a great resource to help reduce stormwater runoff from properties. Keep up the great work!



NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

Table 1. 2013 Average Water Quality Data for LAKE WINNEPOCKET

Station	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Boxlet Inlet			33.8	330	16			1.32	6.66
Cogswell			39.2	10	6			0.56	6.92
Dawe Point			40.9	10	4			0.61	6.90
Epilimnion	6.80	3.62	40.2		10	5.00	5.66	0.69	6.77
Metalimnion			41.9		7			0.60	6.52
Hypolimnion			41.9		9			0.60	6.20
Outlet			40.9	10	5			0.63	6.86
West Wind Village			40.8	10	4			0.41	6.88
Boxlet Inlet 2			41.9	10	3			0.43	6.89

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
Conductivity	Improving	Data significantly decreasing.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.